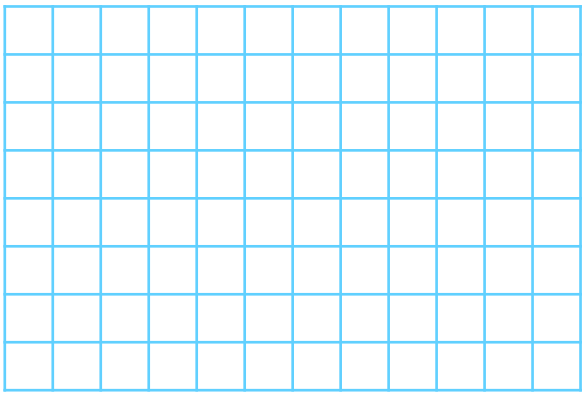
Velocity Problems

1. A person happens to be on a big number line painted on the ground. Starting at x = 2 meters, they move with a constant speed to the x = 6 meters position in 8 seconds.
   a. What was the velocity of the person?

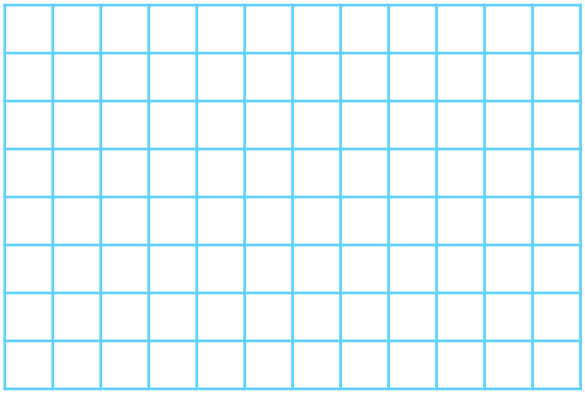


   b. What was the speed of the person?

   c. Make a correct position vs time graph for this motion.

   d. From the graph, how could you determine the velocity?

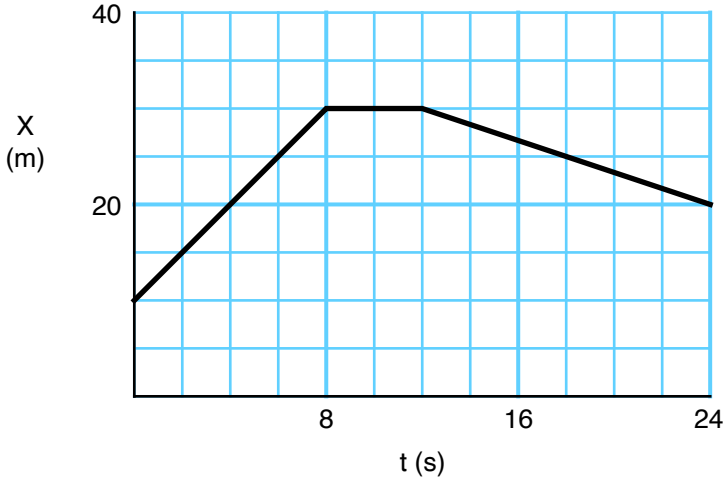
2. Another person happens to be on a big number line as well. Starting at x = 8 meters, they move with a constant speed to the x = 2 meters position in 10 seconds.
   a. What was the velocity of the person?



   b. What was the speed of the person?

   c. Make a correct position vs time graph for this motion.

3. The position vs time graph of something is shown to the right.
   a. Describe the motion. (No calculations needed.)



   b. What is the velocity during the first 8 seconds?

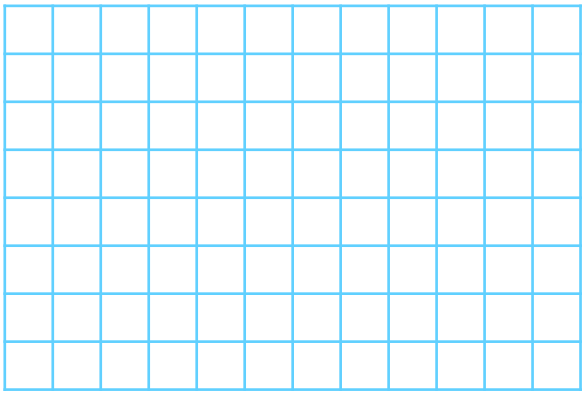
Velocity Problems

c. What is the velocity between 8 and 12 seconds?

d. What is the velocity for the second half of the motion?

e. What was the average velocity for the whole 24 seconds?

4. A car drives 3 hours with a velocity of 60 mph. Then it drives 2 hours with a velocity of –50 mph.
   a. What was its displacement in the first 3 hours? (In other words, how far and in what direction did it travel the first three hours?)



   b. What was its dispacement the last two hours?

   c. What was its total displacement?

   d. What was its average velocity for the whole 5 hours?

   e. Make an appropriate position vs time graph for this motion.

Answers:

1. a) 0.5 m/s b) 0.5 m/s d) the slope of the position line is the velocity

2. a) –0.6 m/s b) 0.6 m/s 3. a) b) 2.5 m/s c) 0 m/s d) –0.833 m/s e) 0.417 m/s

4. a) 180 miles b) –100 miles c) 80 miles d) 16 mph